ICF-M300L

SERVICE MANUAL

AEP Model
UK Model
E Model

SPECIFICATIONS

	FM	MW	LW
Frequency range	87.5 - 108 MHz	531 - 1,602 kHz	153 - 281 kHz
Tuning interval	50 kHz	9 kHz	2 kHz → 7 kHz

Antennas	FM: Telescopic antenna MW/LW: Built-in ferrite bar antenna
Speaker	Approx. 7.7 cm (3 1/8 inches) dia.
Power output	280 mW (at 10% harmonic distortion)
Output	Earphone jack (minijack) for 8-ohm earphone
Power requirements	4.5 V DC Three R6 (size AA) batteries DC IN 4.5 V jack accepts: Sony AC-D3M AC power adaptor (optional) Sony DCC-127A car battery cord (optional) for use with 12 V car battery
Battery life	Approx. 18 hours of listening for four hours a day at a normal volume using Sony batteries SUM-3 (NS)
Dimensions	Approx. 32 × 101 × 181 mm (w/h/d) (1 5/16 × 4 × 7 1/4 inches) not incl. projecting parts and controls
Weight	Approx. 490 g (17.3 oz) incl. batteries
Supplied accessory	Earphone (1)

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MICROFILM

FM/MW/LW 3 BAND PLL SYNSHESIZED RECEIVER

SONY®

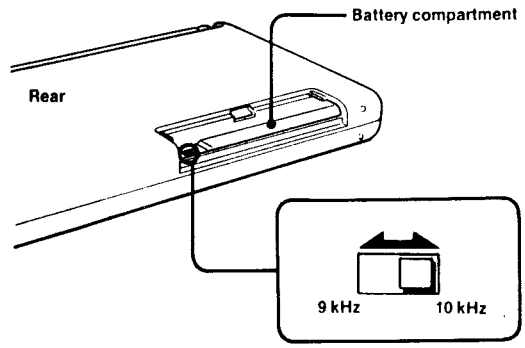
SECTION 1
GENERAL

Features

- A quartz-controlled PLL (Phase Locked Loop) synthesizer system using a microcomputer for easy pinpoint tuning. The tuned-in frequency is digitally displayed.
- Up to 7 stations in each band can be preset.
- Two alarm modes available: radio or buzzer
- Digital clock built-in. The current time and alarm time are digitally displayed.
- A sleep timer turns the radio off automatically at the preset time.

To Change the MW Channel Step

The MW CH STEP is preset at the factory to 9 kHz to match the frequency allocation system of most countries. If you use the radio where the frequency allocation system is based on a 10 kHz interval, such as in the U.S.A. and Canada, set the MW CH STEP selector to 10 kHz.



1 Remove the batteires and wait until all the figures and indicators in the display window disappear.
2 Change the channel step.

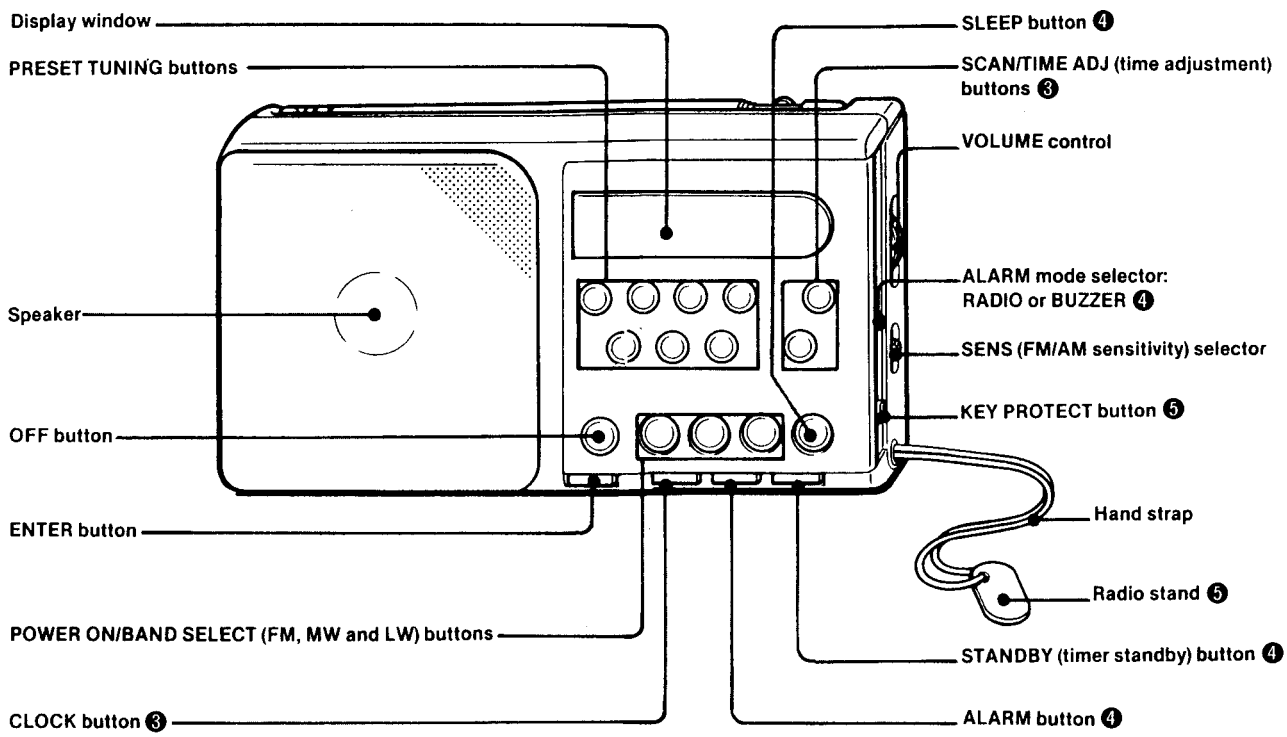
Note

When the channel step is set to 10 kHz, the MW frequency range changes from "531 - 1,602 kHz" to "530 - 1,670 kHz".

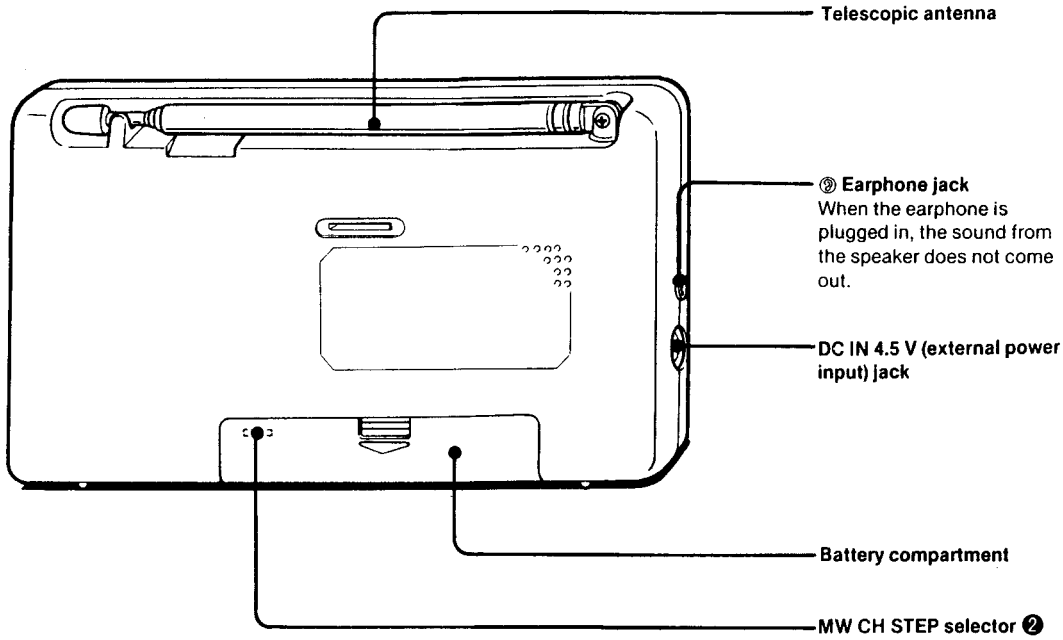
Location and Function of Controls

Refer to the page indicated in ● for details.

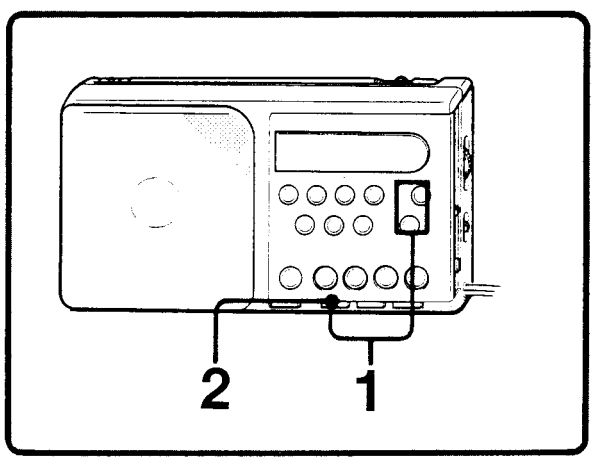
Front panel



Rear panel


Telescopic antenna
⑫ Earphone jack
When the earphone is plugged in, the sound from the speaker does not come out.
DC IN 4.5 V (external power input) jack
Battery compartment
MW CH STEP selector ❷

To Set the Current Time



1 While keeping CLOCK pressed, press TIME ADJ + or – button repeatedly.
When the + or – button is kept pressed, the digits are rapidly advanced.

2 Release CLOCK.
The clock will begin to operate.

- The current time can be set even when the radio is ON.
- The current time is displayed when the radio is OFF.

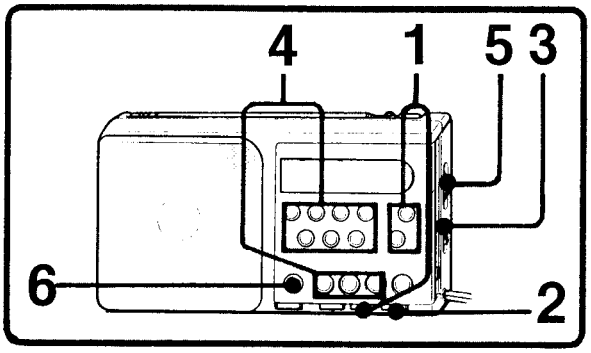
For UK, E model
The time is displayed in the 12-hour system.
Be sure to check the AM/PM indication.
AM 12:00 = midnight
PM 12:00 = noon

To set the time exactly to the second with a telephone time signal

Example: to set to 7:15 to the second

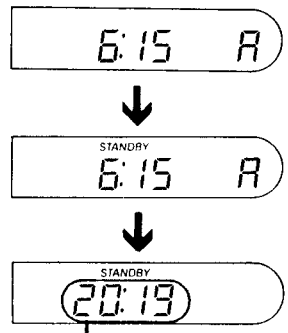
1 Set the time to 7:15 and keep the CLOCK button pressed.
2 Release CLOCK simultaneously with the telephone time signal.

To Set the Alarm Time



RADIO ALARM (6 steps)	BUZZER ALARM (3 steps)
1 Set the alarm time. **While keeping ALARM pressed, press TIME ADJ buttons + or −.**	
2 Press STANDBY so that the STANDBY indicator is displayed. The unit will be in the alarm standby mode.	
3 Set the ALARM mode selector to RADIO.	**3 Set the ALARM mode selector to BUZZER.** The buzzer alarm comes on even when the radio is ON. The radio will be turned off.
4 Tune in the desired station.	
5 Adjust volume.	
6 Press OFF.	

Example: To set to 6:15



Current time or tuned-in station frequency

The radio or buzzer alarm will automatically come on at the preset time, and turn itself off after about 60 minutes.

To stop the radio or buzzer alarm
Press the OFF button. The alarm sound will come on again at the same time next day.

To cancel the alarm before the preset time
Press the STANDBY button so that the STANDBY indicator disappears.

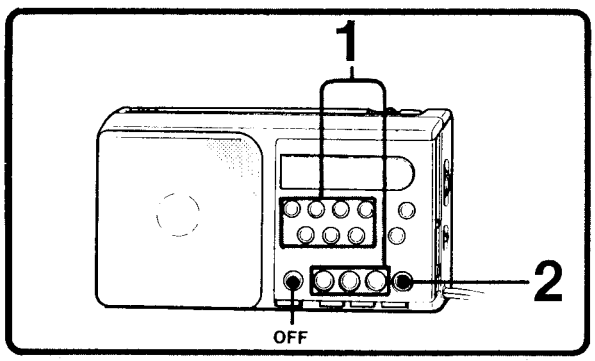
To prevent accidental release of the standby mode
Press the KEY PROTECT button so that the ⊶ mark is displayed.
The alarm will come on at the preset time and the "key protect" function will be released.

To check the alarm preset time
Press the ALARM button.
When the button is released, the previous display will resume.

Notes

- Be sure not to forget pressing the STANDBY button, or the alarm sound will not come on.
- The buzzer alarm level is fixed, and has no relation to the VOLUME control setting.

To Turn Off the Radio Automatically at the Preset Time—sleep timer

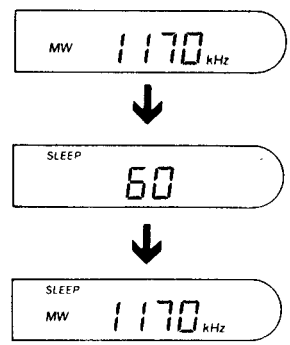


1 Tune in the desired station.

2 Select the sleep timer 90, 60 or 30 minutes, by pressing SLEEP.

The radio will be turned off automatically after a preset time.

Example: to set the timer to 60 minutes



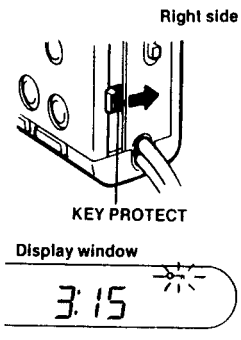
To turn off the radio before the preset time
Press the OFF button.

To prevent accidental release of the sleep timer
Press the KEY PROTECT button so that the ⊶ mark is displayed.
The radio will be turned off at the preset time and the "key protect" function will be released.

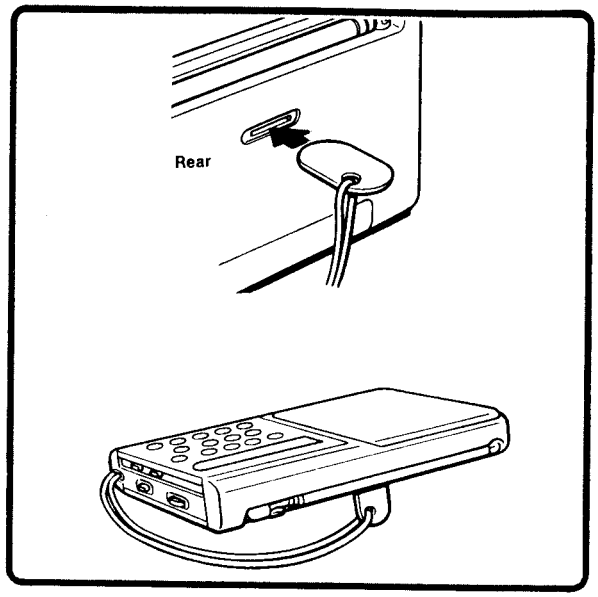
To Prevent Accidental Change of the Receiving Station

Press the KEY PROTECT button in the direction of the arrow. The mark will be displayed, indicating that the front panel buttons cannot be operated. This prevents accidental operation when the unit is being carried.

To release this function, press the KEY PROTECT button again so that the mark will disappear.



How to use the radio stand

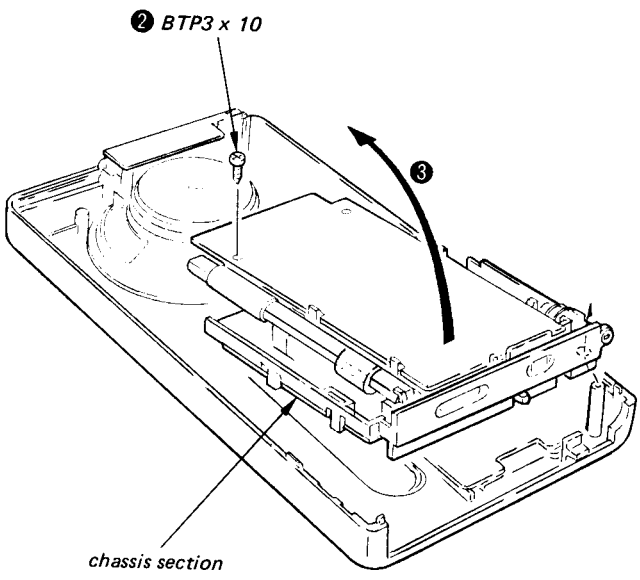


SECTION 2
DISASSEMBLY

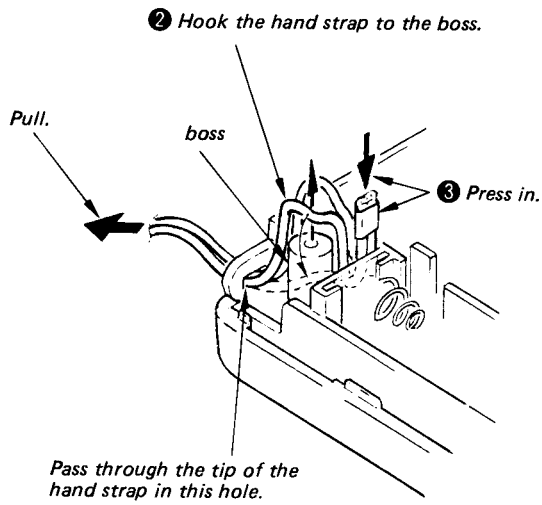
Note: Follow the disassembly procedure in the numerical order given.

CHASSIS SECTION REMOVAL

❶ *Remove the hand strap.*

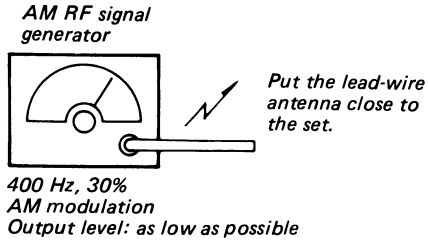


– Hand Strap Installation –

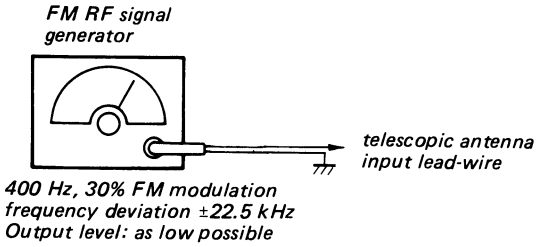


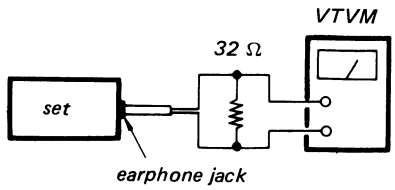
SECTION 3
ADJUSTMENTS

AM Section

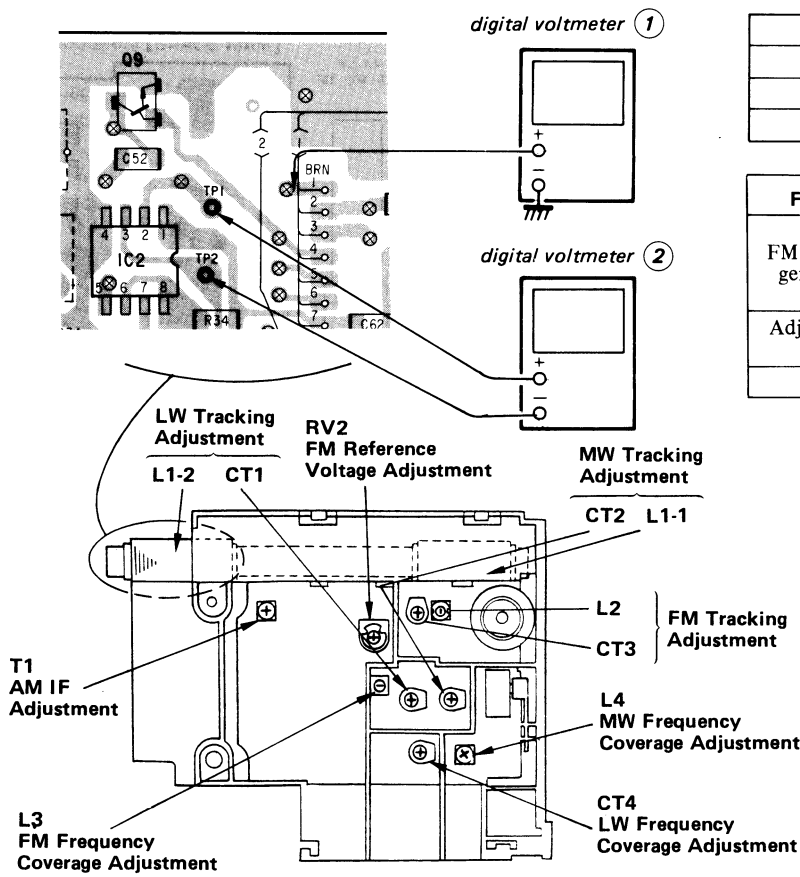


FM Section


FM RF signal generator
telescopic antenna input lead-wire
400 Hz, 30% FM modulation
frequency deviation ±22.5 kHz
Output level: as low possible



- Repeat the procedures in each adjustment several times, and the tracking adjustments should be finally done by the trimmer capacitors.



AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T1	450 kHz

MW FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter (1).
L4	1,602 kHz	8 ±0.1 V

Note: Not use the AM rf signal generator in this adjustment.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1-1	621 kHz
CT2	1,395 kHz

LW FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter (1).
CT4	281 kHz	7 ±0.1 V

Note: Not use the AM rf signal generator in this adjustment.

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1-2	171 kHz
CT1	252 kHz

FM FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter (1).
L3	108 MHz	10 ±0.1 V

Note: Not use the FM rf signal generator in this adjustment.

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	87.5 MHz
CT3	108 MHz

FM REFERENCE VOLTAGE ADJUSTMENT		
FM rf signal generator	Modulation	no modulation
	Carrier frequency	97.025 MHz
	Output level	0.32 mV (54 dB)
Adjustment Part	Frequency Display	Reading on Digital Voltmeter (2).
RV2	97.00 MHz	0 V

SECTION 4
DIAGRAMS

4-1. PRINTED WIRING BOARDS

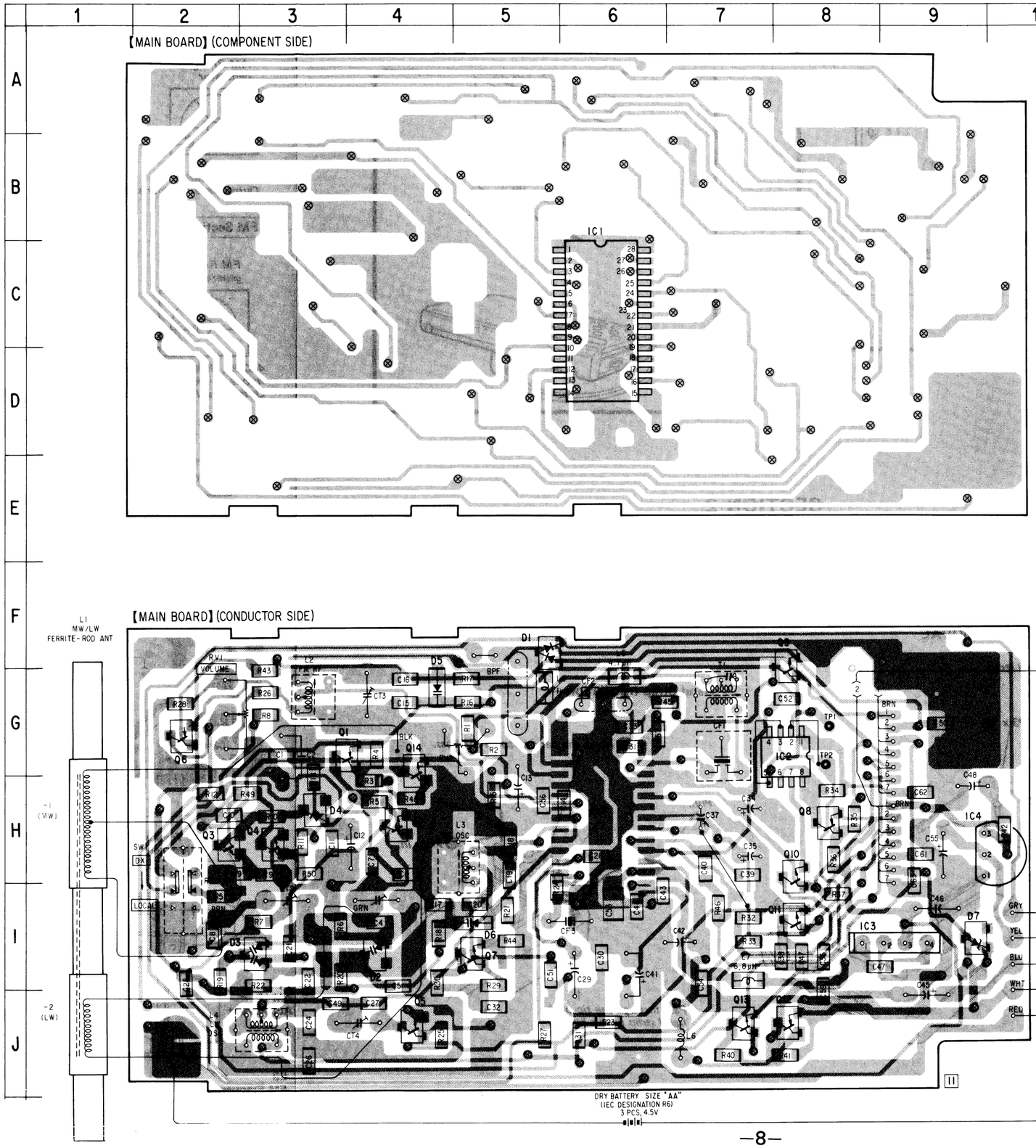
• See page 14 for Semiconductor Lead Layouts.

• **Semiconductor Location**

Ref. No.	Location
D1	F-5
D2	I-4
D3	I-3
D4	H 3
D5	G-4
D6	I-5
D7	I-9
D8	J-13
D100	A-12
D101	A-12
D102	C-12
D103	B-14
D104	B-13
D105	A-12
D106	C-17
D107	F-12
IC1	C-6
IC2	G-8
IC3	I-8
IC4	H-9
IC100	B-22
IC101	B-16
Q1	G-3
Q2	H-4
Q3	H-2
Q4	H-3
Q5	J-4
Q6	G-2
Q7	I-5
Q8	H-8
Q9	F-8
Q10	H-8
Q11	I-8
Q12	J-8
Q13	J-7
Q14	G-4
Q100	B-14
Q101	C-14
Q102	B-15
Q103	B-15
Q104	B-15

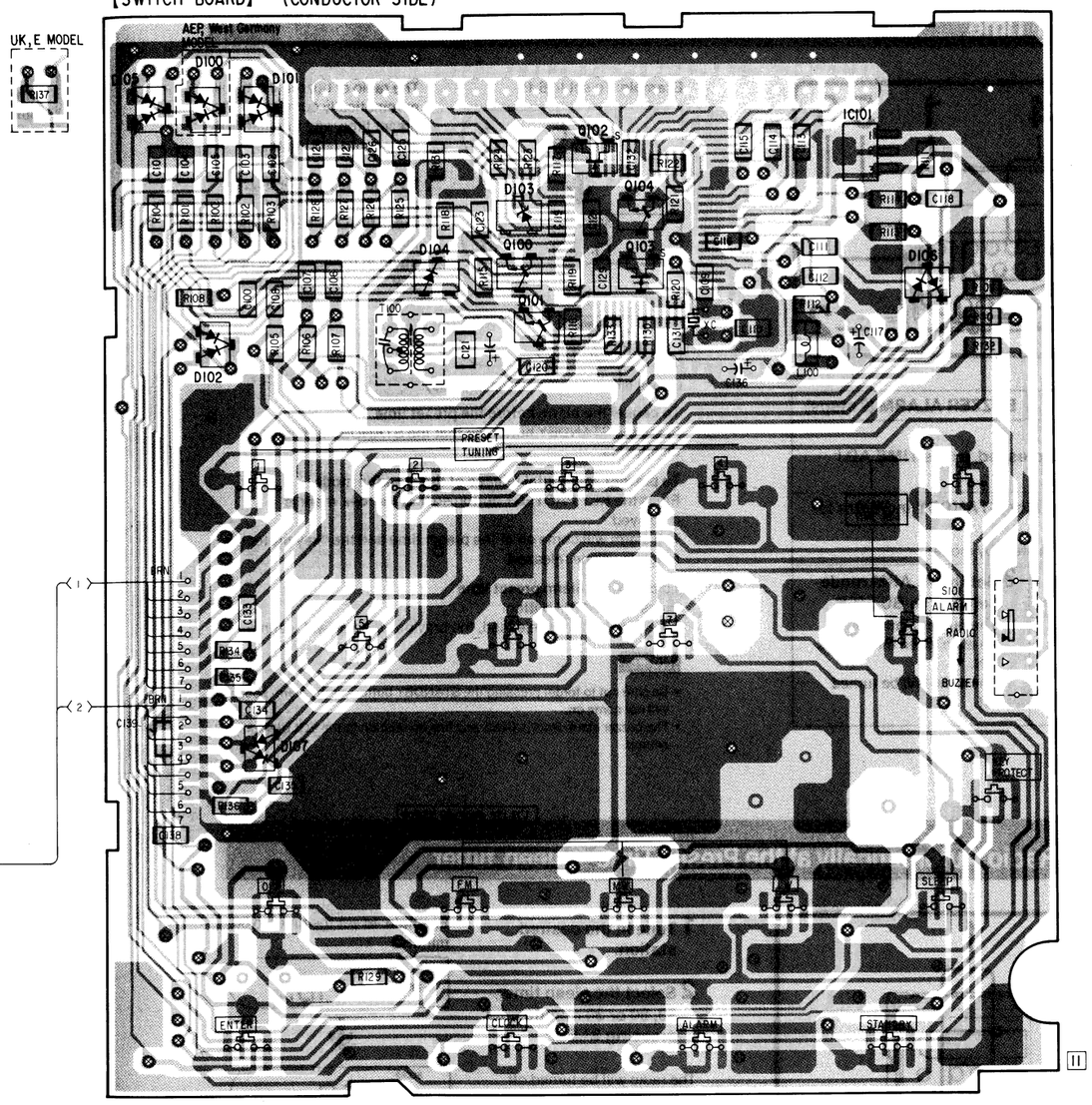
Note:

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ⊗ : Through hole.
- ▒▒ : Pattern on the side which is seen.
- ▒▒ : Pattern of the rear side.

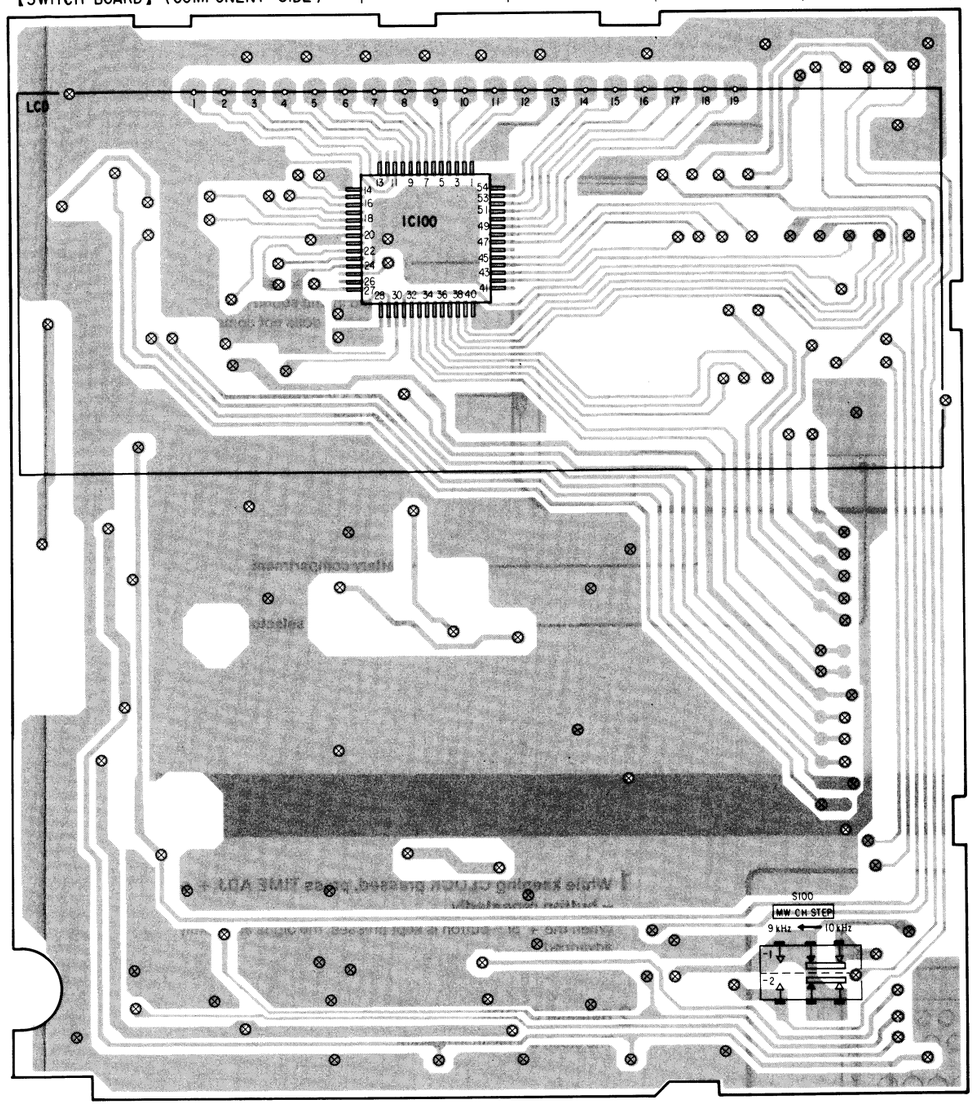


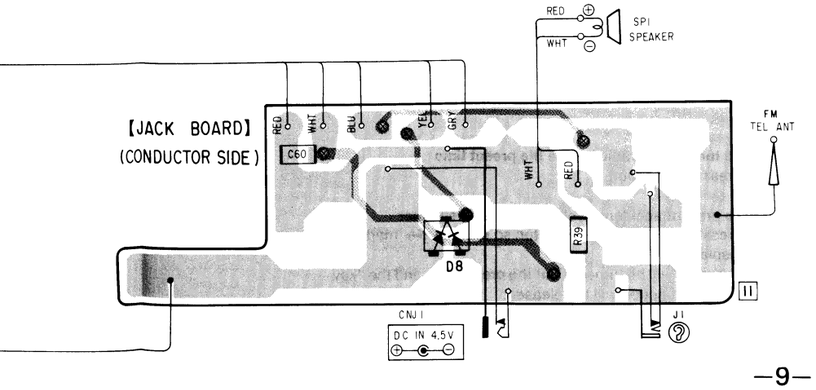
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

【SWITCH BOARD】 (CONDUCTOR SIDE)

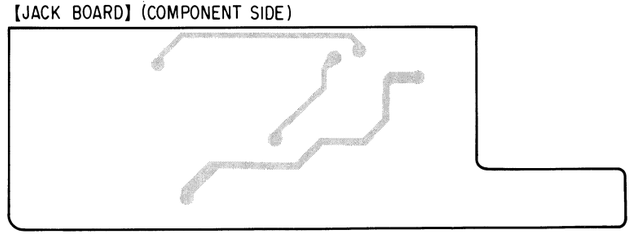


【SWITCH BOARD】 (COMPONENT SIDE)





【JACK BOARD】 (COMPONENT SIDE)



【MAIN BOARD】

【JACK BOARD (1/2)】

FM TEL ANT

D1 1SS123

SW1-1 DX LOCAL

L8 1μH

BPF B.P.F.

Q1 2SB624 BAND SELECT (LW:OFF)

Q14 2SC1623 LW BAND SWITCH (LW:OFF)

Q3 2SK238 AM RF AMP

Q4 2SC2223 MW BAND SWITH (LW:OFF)

L1 MW/LW FERRITE-ROD ANT

D3 KV1560

D4 1SS123

Q2 2SC2223 LW BAND SWITCH (LW:OFF)

D2 KV1560

Q5 2SC2223 LW OSC SWITCH

D3 KV1560

L4 MW OSC

L5 4.7μH

T1

Q11 FA1L4Z LW MUTE

IC1 CXA1019M

FM—RF AMP, MIXING, OSC, IF AMP, QUADRATURE DET/AM—RF AMP, MIXING, OSC, IF AMP, DET/AF POWER AMP

FM FRONT-END

AM FRONT-END

FM IF AMP

FM DISCRI

AF POWER AMP

TUNING METER

AM IF DET AGC

D5 1T33

Q7 2SC2223 VCO BUFFER

D6 1T33

Q6 2SB624 MUTING

Q8 2SB624 B+ SWITCH (FM:ON)

Q9 FA1L4Z BAND SWITCH (AM:ON)

Q10 FA1A4Z FM MUTE

IC2 μPC393G FM COMPARATOR

IC3 VOLT. REG.

【SWITCH BOARD】

Q100,101 2SC1623 DC-DC CONVERTER

Q102,103 2SK209G LOWPASS FILTER

Q104 2SC1623

D104 1SS123

D103 RD11M-B2

D107 1SS123

D106 1SS123

S100 MW CH STEP 10kHz → 9kHz

UK, E MODEL (12-HOUR SYSTEM)

AEP, West Germany MODEL (24-HOUR SYSTEM)

SCAN/TIME ADJ

ALARM CLOCK ENTER STANDBY SLEEP OFF KEY PROTECT MW FM LW POWER ON/BAND SELECT

D100-102, 105 1S2837

IC100 μPD1715G PLL SYNTHESIZER CONTROLLER, LCD DRIVE

INITIAL DIODE KEY SOURCE PULL-UP

EO1 (PLL ERROR OUT)

EO2

VCOH (FM OSC)

VCOL (AM OSC)

BAND2 (LW)

BAND1 (AM)

SD1 (SD SIGNAL IN)

SD2 (FM)

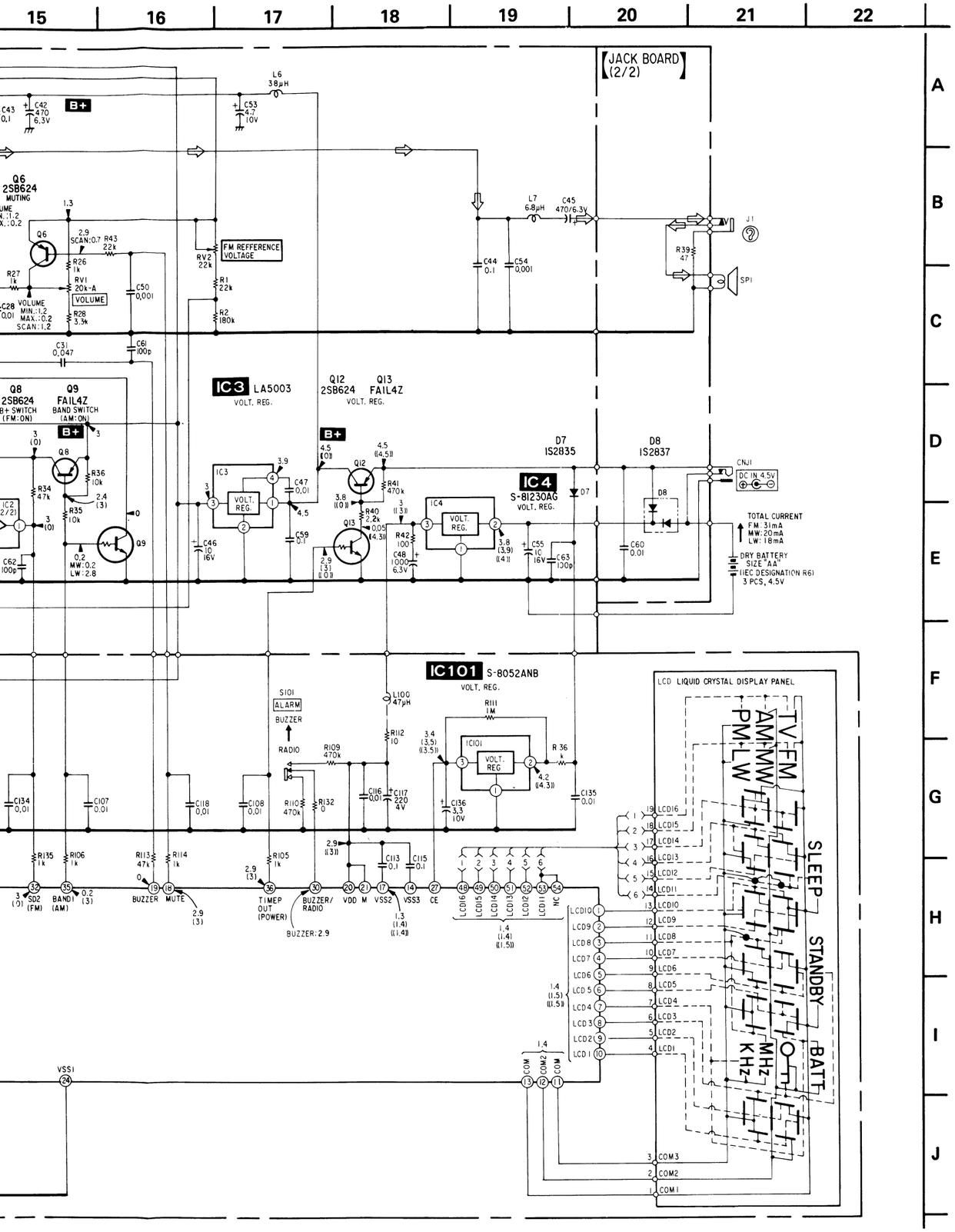
CAP1

CAP2

BUZZER

MUTE

XC 75kHz



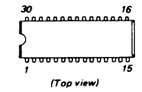
Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : adjustment for repair.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
  no mark : FM mode
  ( ) : AM mode
  (( )) : OFF mode
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- Switch

Ref. No.	Switch	Position
SW1	DX/LOCAL	DX
SW100	MW CH STEP	10 kHz
SW101	ALARM	RADIO

• Semiconductor Lead Layouts

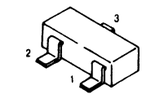
CXA1019M



2SK209G

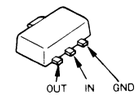
LA5003

2SK238-K16

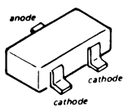


1. Drain
2. Gate
3. Source

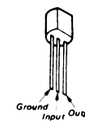
S-8052ANB-NE-S



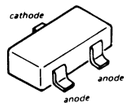
1S2835



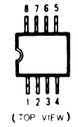
S-81230AG



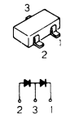
1S2837
KV1560



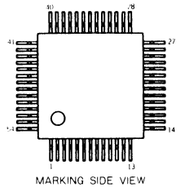
TA7358FN-1
µPB558G
µPC393G2



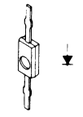
1SS123



µPD1715G-551-22

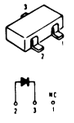


1T32-2
1T33



2SB624-BV4
2SC1623
2SC2223-F13
FA1L4Z-L62
FA1L4Z-L68

RD11M-B2



4-3. μPD1715-551 (IC100)

Pin No.	Symbol	Naming	Description	Active
1 | 10 48 | 53	LCD10 | LCD1 LCD16 | LCD11	LCD SEGMENT SIGNALS	• Segment signal output pins to LCD	–
11 | 13	COM3 | COM1	LCD COMMON SIGNAL	• Common signal output pin to LCD	–
14 15 16 17	VSS3 CAP2 CAP1 VSS2	CAPACITOR CONNECTION PIN FOR TABULAR	• Capacitor connection pins for tabular circuit to make LCD drive voltage	–
18	MUTE	MUTE PIN	• Mute signal output pin to mute noises encountered in the unlocked condition of the PLL and key-scan noises	Low
19	BUZZER	BUZZER OUTPUT PIN	• Output pin of standby alarm sound, range-out beep sound, and scan beep sound	–
20, 46	VDD	POWER SUPPLY INPUT PIN	• Power supply input pin for device • The power-on reset circuit of device starts to operate at the instance this pin receives a voltage of 0 (zero) to 2.0 VDC, and the program starts from the location 0 (zero).	–
21	M	CONTROL SIGNAL INPUT PIN FOR DIVIDER	• Determines the dividing ratio of the fixed-division prescalar. (Only when the VCOH pin is used in VCO input) • A 1/4 dividing ratio is made when this terminal is held at "High" and a 1/2 divider is made when held at "Low".	–
22	VCOH	FM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving FM bands.	–
23	VCOL	AM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving AM bands.	–
24	VSS1	GROUND PIN	• Ground pin of device	–
25, 26	EO	ERROR OUTPUT PIN	• Error output pin of the PLL	–
27	CE	VOLTAGE DECREASE DETECTION PIN	• Voltage decrease detection pin of the set • Becomes tuner off and clock mode in LOW level.	–
28 29	Xi Xo	CRYSTAL OSCILLATOR CONNECTION PIN	• An external quartz-crystal oscillator connects to these pins to obtain 75 kHz signal generator.	–
30	BUZZER/RADIO	BUZZER/RADIO SELECT SW PIN	• Select switch of standby ON "High": BUZZER OUTPUT "Low": RADIO ON	Hi

Pin No.	Symbol	Naming	Description	Active
31	INITIAL DIODE, KEY SOURCE, AND CE PULL-UP PIN	INITIAL DIODE, KEY SOURCE, AND CE PULL-UP PIN	• Used as key source of initial diode. (VDD = "Low" → "High") • Output "High" for 125–250 msec to prevent voltage of CE from decreasing during TIMER OUT output ("Low" → "High").	Hi
32 33	SD2 SD1	SD SIGNAL INPUT PIN	• Input pin of SD (station detection) signal from the tuner	Low
34 35	BAND2 BAND1	BAND DATA OUTPUT PIN	• These pins output band information to the tuner. Receiving band / BAND1 / BAND2 MW: H / L LW: H / H FM: L / L Tuner OFF: L / L	Hi
36	TIMER OUT	TIMER-OUT (POWER) OUTPUT PIN	• Timer-out (power) output pin of the tuner • Outputs "High" during BUZZER output.	Hi
37 38 39 40 42	PB0 PC3 PC2 PC1 PC0	MOMENTARY KEY SOURCE OUTPUT PIN	• Key source output pin of momentary key	Hi
43 44 45 47	K3 K2 K1 K0	KEY RETURN SIGNAL INPUT PIN	• Key return signal input pin of momentary key and diode switch	Hi
41	NC	NO CONNECTION PIN	• This is a free terminal and is not connected to the internal circuits, and this terminal can be used as a junction land.	

- **Key Matrix**

Matrix table of monentary key and diode sw

Input / Output	(43) K3	(44) K2	(45) K1	(47) K0	
(37) PB0	CLOCK	ALARM	UP	DOWN	momentary key
(38) PC3	ENTER	3	2	1	
(39) PC2	STAND-BY	6	5	4	
(40) PC1	KEY PROTECT	OFF	SLEEP	7	
(42) PC0	———	LW	FM	AM	
(31) PA2	A3	A2	A1	A0	diode SW

Slide SW (SW100)

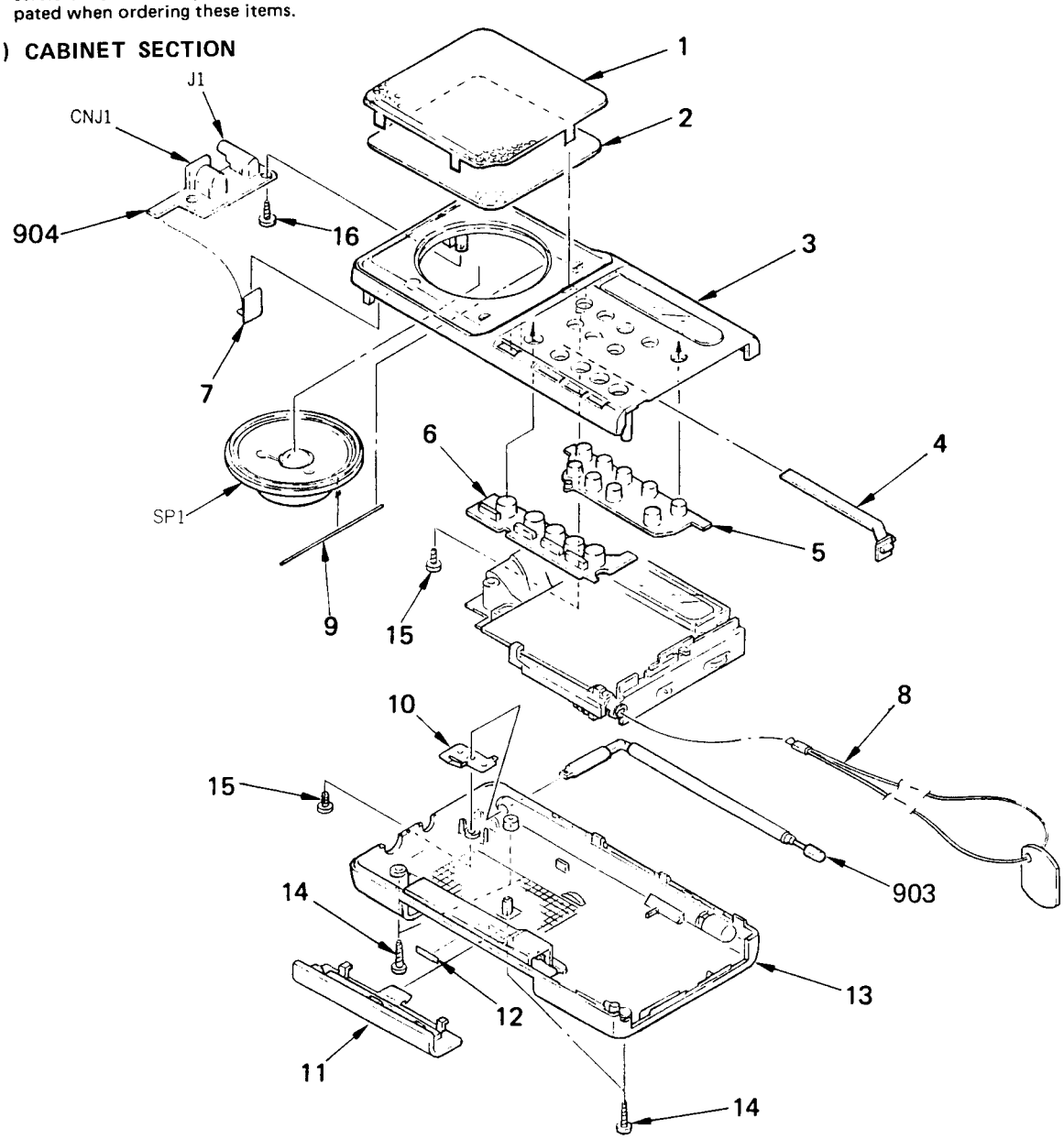
SW Position / Input	VDD	GND
30 PA3	BUZZER	RADIO

SECTION 5
EXPLODED VIEWS

NOTE:

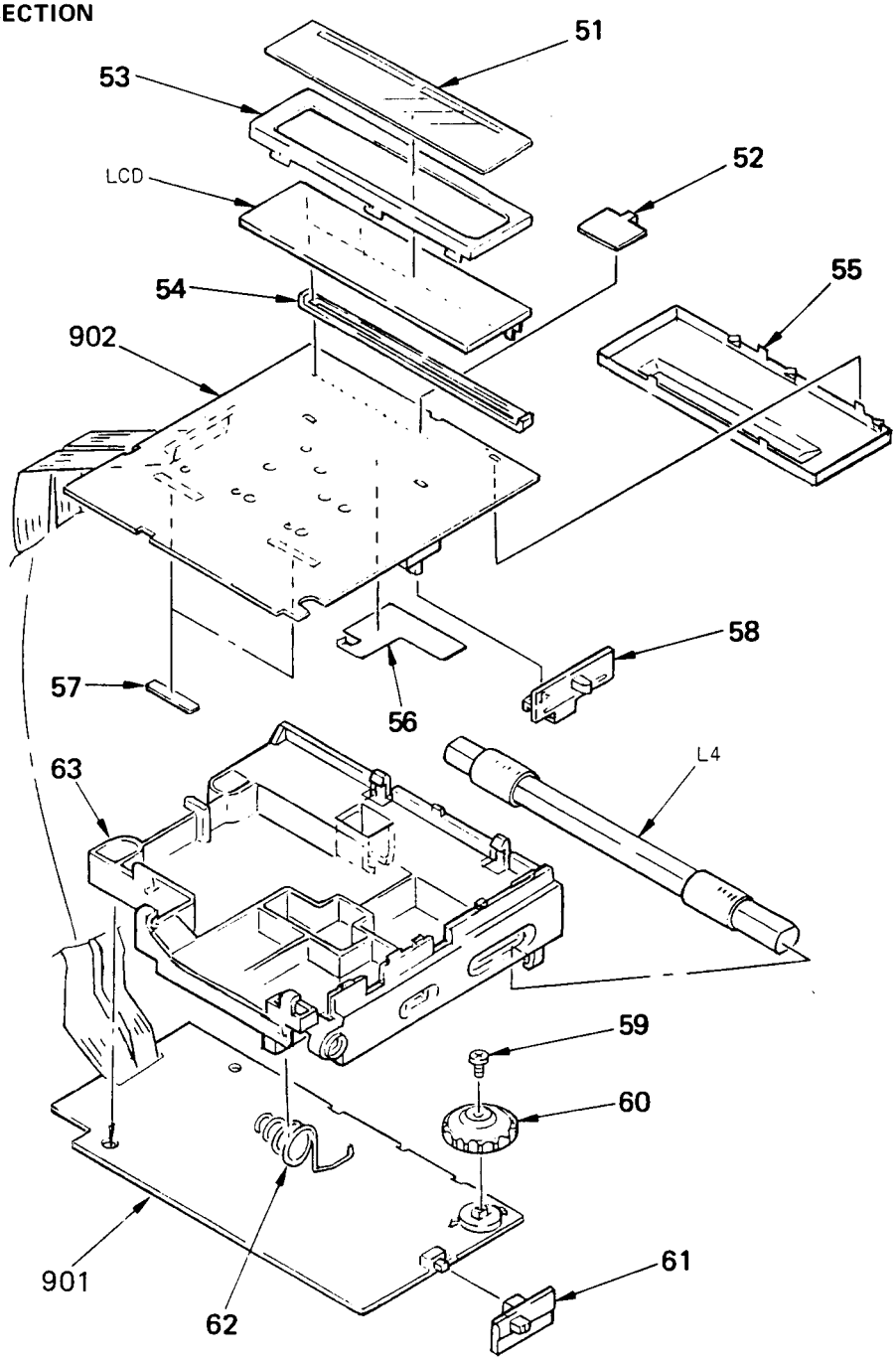
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts Color

(1) CABINET SECTION



No.	Part No.	Description	Remarks
1	3-899-913-01	NET, SPEAKER	
2	3-899-914-01	SHEET, SPEAKER	
3	X-3896-636-1	CABINET ASSY, FRONT	
4	3-899-909-01	KNOB (A)	
5	1-571-351-11	SWITCH, RUBBER KEY (PRESET)	
6	1-571-454-11	SWITCH, RUBBER KEY (BAND SELECT)	
7	3-899-919-01	TERMINAL (PLUS), BATTERY	
8	3-899-926-01	STRAP, HAND	
9	3-899-923-01	SPRING	
10	*3-899-922-01	PLATE, CONTACT, ANTENNA	
11	3-899-907-01	LID, BATTERY CASE	
12	3-703-264-11	LABEL (B), SERIAL NO	
13	3-899-924-21	CABINET (REAR)	
14	7-685-549-14	SCREW +BTP 3X14 TYPE2 N-S	
15	7-682-147-15	SCREW +P 3X6	
16	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	
903	1-501-407-11	ANTENNA, TELESCOPIC	
904	*1-625-847-11	PC BOARD, JACK	
CNJ1	1-507-954-11	JACK, EXTERNAL POWER	
J1	1-563-836-11	JACK (EARPHONE)	
SP1	1-503-937-11	SPEAKER	

(2) CHASSIS SECTION



No.	Part No.	Description	Remarks
51	*3-899-927-01	SHEET, SHIELD	
52	*3-899-934-01	FOIL (G), SHIELD	
53	*3-899-915-01	PLATE (A), SHIELD	
54	*3-899-920-01	SPACER (A)	
55	*3-899-916-01	PLATE (B), SHIELD	
56	*3-899-917-01	PLATE (C), SHIELD	
57	*3-899-921-01	SPACER (B)	
58	3-899-911-01	KNOB (C) (RADIO/BUZZER)	
59	3-880-990-00	SCREW (1.7X3), FLAT, (+) SPECIAL	
60	3-899-910-01	KNOB (B) (VOLUME)	
61	3-899-912-01	KNOB (D) (DX/LOCAL)	
62	3-899-918-01	SPRING (MINUS)	
63	*3-899-908-01	CHASSIS	
901	A-3660-753-A	MOUNTED PCB, MAIN	
902	A-3681-235-A	(AEP,West Germany)...MOUNTED PCB, SWITCH	
	A-3681-236-A	(UK,E).....MOUNTED PCB, SWITCH	
L1	1-402-364-11	ANTENNA, FERRITE-ROD (MW/LW)	
LCD	1-808-341-11	DISPLAY PANEL, LIQUID CRYSTAL	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No.	Part No.	Description		
901	A-3660-753-A	MOUNTED PCB, MAIN		
902	A-3681-235-A	(AEP,West Germany) ...MOUNTED PCB, SWITCH		
	A-3681-236-A	(UK,E).....MOUNTED PCB, SWITCH		
903	1-501-407-11	ANTENNA, TELESCOPIC		
904	*1-625-847-11	PC BOARD, JACK		
BPF	1-235-171-00	FILTER, BAND PASS		
C1	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C2	1-124-462-00	ELECT 10MF	20%	16V
C4	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C5	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C6	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C7	1-163-126-00	CERAMIC CHIP 240PF	5%	50V
C8	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C9	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C10	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C11	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C12	1-124-224-00	ELECT 47MF	20%	6.3V
C13	1-124-229-00	ELECT 33MF	20%	6.3V
C14	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C15	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C16	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C17	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C18	1-163-092-00	CERAMIC CHIP 9PF	0.25PF	50V
C19	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C20	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C21	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C22	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C24	1-163-089-00	CERAMIC CHIP 6PF	0.25PF	50V
C25	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C26	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C27	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C28	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C29	1-124-245-00	ELECT 4.7MF	20%	25V
C30	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C31	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V
C32	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C33	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C34	1-124-258-00	ELECT 3.3MF	20%	35V
C35	1-124-462-00	ELECT 10MF	20%	16V
C36	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V
C37	1-124-257-00	ELECT 2.2MF	20%	50V
C38	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V

Ref.No.	Part No.	Description		
C39	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C40	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C41	1-124-462-00	ELECT 10MF	20%	16V
C42	1-124-472-11	ELECT 470MF	20%	6.3V
C43	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V
C44	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C45	1-124-472-11	ELECT 470MF	20%	6.3V
C46	1-124-462-00	ELECT 10MF	20%	16V
C47	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C48	1-124-471-00	ELECT 1000MF	20%	6.3V
C49	1-136-017-00	CERAMIC CHIP 0.0047MF		50V
C50	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C51	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C52	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V
C53	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C54	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C55	1-124-462-00	ELECT 10MF	20%	16V
C56	1-162-638-11	CERAMIC CHIP 1MF		16V
C57	1-162-568-11	CERAMIC CHIP 0.33MF		25V
C59	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C60	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C61	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C62	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C63	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C100	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V
C101	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V
C102	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V
C103	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V
C104	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V
C105	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V
C106	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C107	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C108	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C109	1-163-106-00	CERAMIC CHIP 36PF	5%	50V
C110	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C111	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C112	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C113	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C114	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C115	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C116	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C117	1-123-827-00	ELECT 220MF	20%	4V
C118	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C119	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C120	1-163-100-00	CERAMIC CHIP 20PF	5%	50V

Ref.No.	Part No.	Description		
C121	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C122	1-123-827-00	ELECT 220MF	20%	4V
C123	1-162-638-11	CERAMIC CHIP 1MF		16V
C124	1-164-006-11	CERAMIC CHIP 0.33MF	10%	16V
C125	1-163-137-00	CERAMIC CHIP 680PF	10%	50V
C126	1-163-137-00	CERAMIC CHIP 680PF	10%	50V
C127	1-163-137-00	CERAMIC CHIP 680PF	10%	50V
C128	1-163-137-00	CERAMIC CHIP 680PF	10%	50V
C129	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C131	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C132	1-164-004-11	CERAMIC CHIP 0.1MF	10%	50V
C133	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C134	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C135	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C136	1-131-368-00	TANTALUM 3.3MF	10%	10V
C137	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C138	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
CF1	1-567-919-11	FILTER, CERAMIC		
CF2	1-567-685-81	FILTER, CERAMIC		
CF3	1-567-685-81	FILTER, CERAMIC		
CNJ1	1-507-954-11	JACK, EXTERNAL POWER		
CT1	1-141-245-00	TRIMMER, CERAMIC		
CT2	1-141-229-00	CAP, TRIMMER		
CT3	1-141-229-00	CAP, TRIMMER		
CT4	1-141-260-00	TRIMAR, CERAMIC		
D1	8-719-101-23	DIODE 1SS123		
D2	8-719-951-05	DIODE KV1560		
D3	8-719-951-05	DIODE KV1560		
D4	8-719-101-23	DIODE 1SS123		
D5	8-719-300-00	DIODE 1T33		
D6	8-719-300-00	DIODE 1T33		
D7	8-719-100-03	DIODE 1S2835		
D8	8-719-100-05	DIODE 1S2837		
D100	8-719-100-05	(AEP,West Germany)...DIODE 1S2837		
D101	8-719-100-05	DIODE 1S2837		
D102	8-719-100-05	DIODE 1S2837		
D103	8-719-106-62	DIODE RD11M-B2		
D104	8-719-101-23	DIODE 1SS123		
D105	8-719-100-05	DIODE 1S2837		
D106	8-719-101-23	DIODE 1SS123		
D107	8-719-101-23	DIODE 1SS123		
IC1	8-752-030-15	IC CXA1019M		
IC2	8-759-100-93	IC UPC393G2		
IC3	8-759-800-27	IC LA5003		

Ref.No.	Part No.	Description			
IC4	8-759-937-61	IC S-81230AG			
IC100	8-759-141-46	IC UPD1715G-551-22			
IC101	8-759-945-21	IC S-8052ANB-NE			
J1	1-563-836-11	JACK (EARPHONE)			
L1	1-402-364-11	ANTENNA, FERRITE-ROD (MW/LW)			
L2	1-459-838-11	COIL (WITH CORE), FM RF			
L3	1-459-837-11	COIL (WITH CORE), FM OSC			
L4	1-406-269-11	COIL (OSC), MW OSC			
L5	1-410-200-31	INDUCTOR CHIP 4.7UH			
L6	1-410-294-11	INDUCTOR, MICRO 38UH			
L7	1-410-202-51	INDUCTOR CHIP 6.8UH			
L8	1-410-192-51	INDUCTOR CHIP 1UH			
L100	1-410-212-51	INDUCTOR CHIP 47UH			
LCD	1-808-341-11	DISPLAY PANEL, LIQUID CRYSTAL			
Q1	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q2	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q3	8-729-123-86	TRANSISTOR 2SK238-K16			
Q4	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q5	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q6	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q7	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q8	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q9	8-729-114-35	TRANSISTOR FA1L4Z-L62			
Q10	8-729-114-35	TRANSISTOR FA1L4Z-L62			
Q11	8-729-114-35	TRANSISTOR FA1L4Z-L62			
Q12	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q13	8-729-114-35	TRANSISTOR FA1L4Z-L62			
Q14	8-729-100-66	TRANSISTOR 2SC1623			
Q100	8-729-100-66	TRANSISTOR 2SC1623			
Q101	8-729-100-66	TRANSISTOR 2SC1623			
Q102	8-729-220-93	TRANSISTOR 2SK209G			
Q103	8-729-220-93	TRANSISTOR 2SK209G			
Q104	8-729-100-66	TRANSISTOR 2SC1623			
R1	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R2	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R3	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R4	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R5	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R6	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W
R7	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W
R8	1-216-001-00	METAL GLAZE	10	5%	1/10W
R9	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R10	1-216-039-00	METAL GLAZE	390	5%	1/10W
R11	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R12	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R13	1-216-017-00	METAL GLAZE	47K	5%	1/10W

Ref.No.	Part No.	Description			
R14	1-216-008-11	METAL GLAZE	20	5%	1/10W
R15	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R16	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R17	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R18	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R19	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R20	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R21	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R22	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R23	1-216-029-00	METAL GLAZE	150	5%	1/10W
R24	1-216-035-00	METAL GLAZE	270	5%	1/10W
R25	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R26	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R27	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R28	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R29	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R30	1-216-025-00	METAL GLAZE	100	5%	1/10W
R31	1-216-037-00	METAL GLAZE	330	5%	1/10W
R32	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R33	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R34	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R35	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R36	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R37	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R39	1-216-017-00	METAL GLAZE	47	5%	1/10W
R40	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R41	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R42	1-216-025-00	METAL GLAZE	100	5%	1/10W
R43	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R44	1-216-001-00	METAL GLAZE	10	5%	1/10W
R45	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R46	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R47	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R48	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R49	1-216-025-00	METAL GLAZE	100	5%	1/10W
R50	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R51	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R100	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R101	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R102	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R103	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R104	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R105	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R106	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R108	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R109	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R110	1-216-113-00	METAL GLAZE	470K	5%	1/10W

Ref.No.	Part No.	Description			
R111	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R112	1-216-001-00	METAL GLAZE	10	5%	1/10W
R113	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R114	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R115	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R116	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R117	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R118	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R119	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R120	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R121	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R122	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R123	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R124	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R125	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R126	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R127	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R128	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R129	1-216-295-00	METAL GLAZE	0	5%	1/10W
R130	1-216-025-00	METAL GLAZE	100	5%	1/10W
R131	1-216-295-00	METAL GLAZE	0	5%	1/10W
R132	1-216-295-00	METAL GLAZE	0	5%	1/10W
R133	1-216-008-11	METAL GLAZE	20	5%	1/10W
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R135	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R136	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R137	1-216-295-00	(UK,E)...METAL GLAZE	0	5%	1/10W
RV1	1-238-107-11	RES, VAR, CARBON 20K (VOLUME)			
RV2	1-228-995-00	RES, ADJ, CARBON 22K			
SP1	1-503-937-11	SPEAKER			
SW1	1-554-123-00	SWITCH, SLIDE (DX/LOCAL)			
SW100	1-571-249-11	SWITCH, SLIDE (MW CH STEP)			
SW101	1-570-331-11	SWITCH, SLIDE (ALARM)			
T1	1-404-789-11	TRANSFORMER, IF			
T100	1-449-138-11	TRANSFORMER, DC-DC CONVERTER			
XC	1-577-028-11	VIBRATOR, CRYSTAL			

ACCESSORY & PACKING MATERIAL

1-504-059-11	MAGNETIC EARPHONE (ME-20H)
*3-896-699-01	CUSHION
3-898-361-01	SHEET, PROTECTION
*3-899-903-01	INDIVIDUAL CARTON
3-990-148-11	(EXCEPT West Germany)...MANUAL, INSTRUCTION
3-990-148-41	(AEP,West Germany).....MANUAL, INSTRUCTION
3-990-148-51	(E).....MANUAL, INSTRUCTION

9-953-171-11

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